

REMARKS/ARGUMENTS

Claims 1-20 and 23-26 were pending all of which stand rejected. Claims 17, 19, 20, 23 and 24 have been canceled and new Claims 27 and 28 have been added, leaving Claims 1-16, 18 and 25-28 pending. Reconsideration is respectfully requested.

Claims 17, 19 and 20

Claims 17, 19 and 20 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Claims 17, 19 and 20 have been canceled.

Claims 1, 8, 23, 25 and 26

Claims 1, 8, 23, 25 and 26 were rejected under 35 U.S.C. 102(b) as being anticipated by Orczyk et al.

The Examiner stated that Orczyk et al. teaches "inserting a wafer into a reaction chamber, performing a plasma process on the wafer, cooling the wafer by an amount sufficient to terminate processing the wafer, and removing the wafer from the reaction chamber while maintaining the plasma (col. 3, lines 50-57, col. 13, lines 40-47, col. 14 lines 12-40, col. 16, lines 5-25)."

First, the above statement does not correctly describe what Claim 1 recites. Claim 1 recites "creating a plasma in a reaction chamber and performing all of the following in the sequence indicated while maintaining said plasma in said reaction chamber" (emphasis added). One of the "following" elements listed in Claim 1 is "inserting the wafer into the reaction chamber." Thus, Claim 1 requires "inserting the wafer into the reaction chamber" while "maintaining said plasma in said reaction chamber."

Orczyk et al. teaches introducing a wafer into the chamber and then forming a plasma. This is clearly evident from the text at col. 3, lines 52-56, and at col. 13, lines 41-47. Similarly, in the process sequence shown in Fig. 6, "Place Wafer in System" (step 701) clearly takes place before "Strike Plasma" (step 703).

Second, Claim 1 recites "cooling the wafer by an amount sufficient to terminate processing the wafer." In contrast, Orczyk et al. teaches "cooling the wafer and enhancing the net deposition rate of the layer by increasing the deposition-to-etch ratio" (col. 3, lines

66-67). This indicates that the processing is increased as a result of cooling the wafer. At col. 14, lines 26-35, Orczyk et al. teaches forming a USG layer and then flowing helium through the cooling channels in a chuck to cool the substrate, but there is no indication that the substrate is cooled sufficiently to "terminate processing," as required by Claim 1. In fact, the USG layer is deposited before the "main deposition step" (col. 14, line 60), so a person of skill reading this passage of Orczyk et al. would have no reason to think that the substrate was cooled sufficiently to terminate processing.

For each of the above reasons independently, Claim 1 is not anticipated by Orczyk et al. Claims 8, 23, 25 and 26 depend from Claim 1 and therefore these claims are also allowable over Orczyk et al.

Claims 1-11, 15-17, 19, 20 and 24

Claims 1-11, 15-17, 19, 20 and 24 were rejected under 35 U.S.C 103(a) as being unpatentable over Kwan et al.

Like Orczyk et al., Kwan et al. teaches placing the substrate in the process chamber before striking the plasma (see col. 13, lines 50-52, 64-66). And in the process flowchart shown in Fig. 3, "Load Substrate Into Process Chamber" (step 310) occurs before "Apply RF Source Power" (step 340). There is no teaching or suggestion in Kwan et al. of maintaining a plasma while placing a substrate in the process chamber. As noted above, Claim 1 requires "inserting the wafer into the reaction chamber" while "maintaining said plasma in said a reaction chamber."

Moreover, Kwan et al. does not teach or suggest "cooling the wafer by an amount sufficient to terminate processing the wafer," as specified by Claim 1. To the contrary, Kwan et al. teach that the wafer is cooled for the etching step (col. 14, lines 33-36). Thus Kwan et al. indicates affirmatively that the processing continues after the substrate is cooled.

For each of these independent reasons, Claim 1 is allowable over Kwan et al. Claims 2-11, 15, 16 and 24 depend from Claim 1 and are therefore also allowable over Kwan et al. Claims 17, 19 and 20 have been canceled.

Claims 14 and 18

Claims 14 and 18 were rejected under 35 U.S.C 103(a) as being unpatentable over Kwan et al. in view of Chang et al. The Examiner cited Chang et al. as teaching "etching a photoresist and the wafer having a gate dielectric layer (col. 5, lines 28-30, 50-55)."

Both of Claims 14 and 18 depend from Claim 1. For the reasons described above, Claim 1 is patentable over Kwan et al. alone. Chang et al. does not overcome any of the deficiencies of Kwan et al. with regard to Claim 1. For example, there is no teaching or suggestion in Chang et al. of maintaining a plasma while placing a substrate in the process chamber. Therefore, Claim 1 is allowable over the combination of Kwan et al. and Chang et al., and Claims 14 and 18 are likewise allowable over this combination.

Claims 12 and 13

Claims 12 and 13 were rejected under 35 U.S.C 103(a) as being unpatentable over Kwan et al. in view of Wang et al. The Examiner cited Wang et al. as teaching "a plasma process to depoisti a phosphorous-doped silicon dioxide layer (col. 6, lines 30-40)."

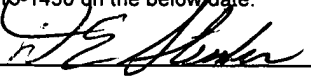
Both of Claims 12 and 13 depend from Claim 1. For the reasons described above, Claim 1 is patentable over Kwan et al. alone. Wang et al. does not overcome any of the deficiencies of Kwan et al. with regard to Claim 1. For example, there is no teaching or suggestion in Wang et al. of maintaining a plasma while placing a substrate in the process chamber (see, e.g., col. 8, lines 31-36). Therefore, Claim 1 is allowable over the combination of Kwan et al. and Wang et al., and Claims 12 and 13 are likewise allowable over this combination.

For the above reasons, Applicants submit that Claims 1-16, 18 and 25-28 are clearly allowable over the references cited by the Examiner and request the issuance of a

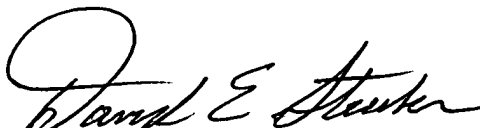
notice of allowance. Should the Examiner wish to discuss any aspect of this case, she is invited to telephone the Applicants attorney at 408-982-8201

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Respectfully submitted,


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